

CLAIMS 53290

NEWCLAIMS 11-24

11. (new) A process for the preparation of ethyldimethylamine and triethylamine with the following steps
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- (i) reaction of a mixture of diethylamine and dimethylamine with ethylene in the presence of a catalyst from the group of alkali metal dimethylamides, alkali metal diethylamides and alkali metal hydrides
- 10 (ii) removal of the catalyst
- (iii) distillation separation of the resulting mixture in triethylamine and ethyldimethylamine and optionally diethylamine and dimethylamine
- 15 (iv) optional return of the catalyst and of the starting amines to the reaction.
12. (new) A process as claimed in claim 11, wherein diethylamine is used in excess.
13. (new) A process as claimed in claim 12, wherein the diethylamine/triethylamine ratio is (8 to 15):1.
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14. (new) A process as claimed in claim 13, wherein the diethylamine/triethylamine ratio is 10:1.

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15. (new) A process as claimed in claim 11, wherein ethylene is used in excess.
16. (new) A process as claimed in claim 11, wherein the alkali metal is chosen from Li,
5 Na or K.
17. (new) A process as claimed in claim 16, wherein the alkali metal is chosen from Na.
- 10 18. (new) A process as claimed in claim 11, wherein the catalyst is chosen from Na diethylamide or Na dimethylamide or mixtures thereof.
19. (new) A process as claimed in claim 11, wherein the metal amide is prepared prior
to use in the reaction from dimethylamine or diethylamine or a mixture thereof
15 in a manner known per se.
20. (new) A process as claimed in claim 11, wherein the streams passed to the reactor
comprise 0 to 1% by weight of ammonia, 0 to 5% by weight of (monoethylamine +
monomethylamine), 20 to 80% by weight of (diethylamine + dimethylamine), 0 to
20 50% by weight of triethylamine, 5 to 50% by weight of ethylene, 0.01 to 20% by
weight of the catalyst and 0 to 20% by weight of a solvent for the catalyst.

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21. (new) A process as claimed in claim 20, wherein the streams passed to the reactor
comprise < 0.1% by weight of ammonia, <1% by weight of (monoethylamine +
monomethylamine), 40 to 70% by weight of (diethylamine + dimethylamine),
< 40% by weight of triethylamine, 10 to 30% by weight of ethylene and 0.1 to 2%
5 by weight of the catalyst.
22. (new) A process as claimed in claim 11, wherein the preparation of the amide and
the hydroamination are carried out in a single process stage.
- 10 23. (new) A process as claimed in claim 11, wherein a cocatalyst from the group of
cyclic or open-chain imine or of tautomeric enamine compounds is used.
24. (new) A process as claimed in claim 11, wherein some of the amine mixtures
obtained following removal of the catalyst is separated, some of the triethylamine is
15 transalkylated in an isomerizing manner with the addition of ammonia, and the
resulting diethylamine, following removal, is returned as starting material to the
reactor.